

U.S. Patent Application No. 09/896,886
Amendment dated October 23, 2003
Reply to Office Action dated April 23, 2003

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0007] with the following amended paragraph:

[0007] The photothermal conversion material can be either a pigment or a dye. For example, UV- and IR-active dyes have been disclosed in phenolic printing plate applications (see ~~DBP 879205~~ and WO 97/39894). IR-absorptive pigments such as carbon black have also been shown to be useful in a lithographic printing plate (see, for example, WO 99/08157, WO 96/20429, WO 99/11458, and US 6060218 in which carbon black is present in a phenolic polymer).

Please replace paragraph [0057] with the following amended paragraph:

[0059] The polymeric groups of the present invention can be prepared in a number of ways and such ways are known to those skilled in the art. ~~The above referenced KIRK-OTIMER section, Modern Plastics Encyclopedia, and C.A. Daniels' reference provide methods in which these polymeric groups can be prepared.~~

Please replace paragraph [0067] with the following amended paragraph:

[0067] The pigment products may be purified by washing, such as by filtration, centrifugation, or a combination of the two methods, to remove unreacted raw materials, byproduct salts and other reaction impurities. The products may also be isolated, for example, by evaporation or it may be recovered by filtration and drying using known techniques to those skilled in the art. Dispersions of the pigments of the present invention may be further purified or

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classified to remove impurities and other undesirable free species which can co-exist in the dispersion as a result of the manufacturing process. In a preferred embodiment, the pigment dispersions are subject to a classification step, such as centrifugation, to substantially remove particles having a size above about 1.0 micron, preferably above about 0.5 micron. In addition, the dispersion is preferably purified to remove any undesired free species, such as unreacted treating agent. Known techniques of ultrafiltration/diafiltration using a membrane or ion exchange may be used to purify the dispersion and remove a substantial amount of free ionic and unwanted species. Also preferred is an optional exchange of counterions whereby the counterions that form a part of the surface-modified pigment are exchanged or substituted with alternative counterions (including, e.g., amphiphilic ions) utilizing known ion exchange techniques such as ultrafiltration, reverse osmosis, ion exchange columns and the like. Particular examples of counterions that can be exchanged include, but are not limited to, Na^+ , K^+ , Li^+ , NH_4^+ , Ca^{2+} , Mg^{2+} , Cl^- , NO_3^- , NO_2^- , acetate, and Br^- . Such additional classification and purification methods are more fully described in U. S. Patent No. 6,328,894 ~~Application No. 09/240,291, filed January 29, 1999~~, the disclosure of which is fully incorporated herein by reference. The removal of impurities from the pigment products may improve their properties when used in printing plates, black matrix materials, proofing materials, or in thermal transfer recording materials, as discussed in more detail below.

Please replace paragraph [0090] with the following amended paragraph:

[0090] An aqueous dispersion of 34.2 grams of Cab-O-Jet[®] 300 black dispersion (commercially available from Cabot Corporation, Billerica, MA) was reacted with 0.8 grams of ~~Arquad~~ ARQUAD[®] DMHTB quaternary ammonium compound. The carbon flocculated and the carbon black product was isolated by filtration, washed with water, and dried at 70°C. 1.5 grams of the resulting carbon black product were mixed with 25 grams of a solution of 24 wt% a

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phenolic resin in 1-methoxy-2-propanol and 25 grams of 1-methoxy-2-propanol. The mixture was placed into a Midget mill containing 200 grams of stainless steel shot. The mill was sealed and placed in a paint shaker for 2 hours. Dispersion quality was checked with a Hegeman grind gauge and found to be at least 7 on the gauge scale. The resulting dispersion was coated onto a grained anodized aluminum plate to give a uniform wet coating with a thickness of 25 microns. The coated plate was air dried. The resulting composite could be imaged by selective exposure to infrared radiation (e.g. with a diode laser emitting at 830 or 1064 nm) and could be developed with a sodium silicate developer.

Please replace paragraph [0093] with the following amended paragraph:

[0093] To a vigorously stirred 70°C slurry of 10 grams phthalocyanine blue 15:4 was added 3.6 grams of 4-aminobenzoic acid, 1.2 grams of 70 wt% nitric acid and 1.8 grams of sodium nitrite. The product was purified by dialysis with water to yield a dispersion having 9.8 wt% solids. On a dry basis, the pigment had 0.12 meq/g attached sodium carboxylate groups. 51 grams of the pigment dispersion were reacted with 0.25 grams of ~~Arquad~~ ARQUAD® DMHTB quaternary ammonium compound. The pigment product was isolated by filtration, washed with water, and dried at 70°C. 1.5 grams of the resulting phthalocyanine blue pigment product were mixed with 25 grams of a solution of 24 wt% a phenolic resin in 1-methoxy-2-propanol and 25 grams of 1-methoxy-2-propanol. The mixture was placed into a Midget mill containing 200 grams of stainless steel shot. The mill was sealed and placed in a paint shaker for 2 hours. Dispersion quality was checked with a Hegeman grind gauge and found to be at least 7 on the gauge scale. The resulting dispersion was coated onto a grained anodized aluminum plate to give a uniform wet coating with a thickness of 25 microns. The coating was air dried. The resulting composite could be imaged by selective exposure to infrared radiation (e.g. with a diode laser emitting at 830 or 1064 nm) and could be developed with a sodium silicate developer.

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Please replace paragraph [0104] with the following amended paragraph:

[0104] To 10 grams of the carbon black dispersion prepared in Example 10 was added 0.06 grams of sodium hydroxide followed by 0.635 grams of ~~Arquad~~ ARQUAD® DMHTB quaternary ammonium compound. The flocculated material was filtered, washed with water and dried at 70°C. A coating composition was prepared by mixing together 1 gram of the carbon black product in 16.7 grams of 24 wt% a phenolic resin in 1-methoxy-2-propanol, and 15.6 grams of 1-methoxy-2-propanol. The mixture was placed into a Midget mill containing 200 grams of stainless steel shot. The mill was sealed and placed in a paint shaker for 2 hours. Dispersion quality was checked with a Hegeman grind gauge and found to be at least 7 on the gauge scale. The resulting dispersion was coated onto a grained anodized aluminum plate to give a uniform wet coating with a thickness of 25 microns. The coating was air dried. The resulting composite could be imaged by selective exposure to infrared radiation (e.g. with a diode laser emitting at 830 or 1064 nm) and could be developed with a sodium silicate developer.

Please replace paragraph [0105] with the following amended paragraph:

[0105] An aqueous dispersion of 34.2 grams of Cab-O-Jet® 300 black dispersion (commercially available from Cabot Corporation, Billerica, MA) was reacted with 0.8 grams of ~~Arquad~~ ARQUAD® DMHTB quaternary ammonium compound. The carbon black product was isolated by filtration, washed with water, and dried at 70°C. 1.5 grams of the resulting carbon black product were mixed with 25 grams of a solution of 24 wt% HRJ-2606 phenolic resin in 1-methoxy-2-propanol and 25 grams of 1-methoxy-2-propanol. The mixture was placed into a Midget mill containing 200 grams of stainless steel shot. The mill was sealed and placed in a

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paint shaker for 2 hours. Dispersion quality was checked with a Hegeman grind gauge and found to be at least 7 on the gauge scale. The resulting dispersion was coated onto a grained anodized aluminum plate to give a uniform wet coating with a thickness of 25 microns. The coated plate was air dried. The resulting composite could be imaged by selective exposure to infrared radiation (e.g. with a diode laser emitting at 830 or 1064 nm) and could be developed with a sodium silicate developer.